Attached are Site Plan Checklists of Requirements for:

Planning Department
Environmental Engineering Department
Utilities Department
Right of Way Department
Fire Department
VDOT
House Numbering Department
Chesterfield County Department of Transportation
GIS Department

These checklists are for reference use only, in preparation of site plan submittal. They are not part of the submittal package.

PLANNING DEPARTMENT CHECKLIST

Planning Department Standard Checklist of Requirements is described in the following 4 sections. Section A specifies information to be on the Site Plan Sheet (and Title Sheet if noted). Section B is additional information to be found within the entire set of construction documents. Section C lists items necessary to accommodate the handicapped. Section D has items that are site-specific items that you should discuss with Planning Department if you are not sure it applies to your site. The Section E and F cover information on Architecture and Landscape Plan review.

SECTION A. INFORMATION REQUIRED TO BE SHOWN ON THE LAYOUT SHEET (OR TITLE SHEET IF NOTED)

1. Magisterial District (Title sheet or layout sheet)

2. Supply owner name, zoning and GPIN numbers of all adjacent properties. (Layout sheet)

3. Provide setback distance from limits of ultimate right of way to parking and to buildings. As setbacks may be reduced under certain conditions; explain on site plan the conditions for establishing the setbacks.

4. Show number of stories for existing and proposed buildings.

5. Provide gross square foot floor area for existing and proposed buildings.

6. Parking spaces are to be 9 feet by 18 feet minimum. Also show parking dimensions.

7. Face of curb to face of curb minimum dimension for double loaded 90 degree parking is sixty (60) feet and single loaded parking is forty-two (42) feet. Note: Other dimensions are specified in the Ordinance when angled parking is used.

8. Provide raised concrete or landscaped island(s) at the end of all parking rows as needed to meet internal parking lot landscaping or pedestrian access requirements. Minimum width for landscaped islands is nine (9) feet.

9. Show dimensions for driveways (varies - see Zoning Ordinance, Section 19-514)

10. Show location of dumpster pad. Suggest - minimum size to be ten (10) feet by twenty (20) feet with concrete pad extending underneath the front wheels of the dumpster truck. If within 1000 ft. of residential, place max sq. ft. sign on dumpster gate stating "No Service Between 9 PM - 6 AM".

11. If there are existing trees required to be saved in setback, please indicate on the site plan the number of deciduous trees and evergreen trees. See Development Standards Manual, Section 19-518(d).

12. Show calculations used to determine site-parking requirements. See Development Standards Manual, Section 19-513.

13. List the existing/proposed uses in the building(s) and/or site.

14. List the maximum height of any structures.

SECTION B. INFORMATION REQUIRED WITHIN THE ENTIRE SET OF SITE CONSTRUCTION DRAWINGS.

1. Put the Chesterfield County Site Plan number in the lower right corner of each sheet. (Provided by County with first review)

2. Certification seal must be provided and signed and dated on all sheets with original signatures on cover sheet.

3. Provide pavement design detail for parking and/or driveway area.

4. Provide detail for bumper block installation at handicap spaces or where gravel parking is allowed.

5. Put note on plans: "Any sign in excess of eight (8) square feet requires a permit. Permit must be obtained through Building Inspection Department." If a sign is shown on the Site Plan, note on plan - "signage contingent upon approval through sign permit review process."

6. Add note to plans - "All proposed utilities are to be installed underground including electric, telephone and CATV".

7. Provide detail for dumpster or garbage can screen. Gates are required for dumpsters and must provide solid screening (chain link with slats is not acceptable).

8. Insure all proposed and existing improvements read clearly on the plans (this comment may be made by any review department).

9. Horizontal scale(s) must be shown on each sheet. Horizontal scale(s) shall also show a graphic scale.

10. Plans reflect all conditions required by any Zoning, Variance, BZA, or CPC case. (All departments check for conditions they should enforce).

11. The first submittal shall include a plan date (month, day & year) and each revised set of plans show a revision date.

12. Show metes & bounds of variable width easements and parcels to be conveyed, (centerline data is acceptable for standard width easements) on a separate easement sheet or on the layout sheet, if it is not over congested.

SECTION C: FOR ADA REVIEW

1. Show location and dimensions of handicap parking spaces and pedestrian access aisles. Parking spaces are to be located as close to the main building entrance as possible.

2. Show grading of handicap parking spaces per ADA standards. (typically 2% or less)

3. Show connection of pedestrian access aisles to sidewalks. Install bumper blocks at ends of parking spaces.

4. Show location and detail(s) of handicap parking signage.

Caution: Handicap parking, pedestrian access, and signage must meet the requirements of the ADAAG manual.

SECTION D: Information required as needed for different types of development. These items can be identified by attending a Wednesday preliminary staff/developer meeting. Call Marie Stivers at (804) 768-7485 to schedule meeting.

1. Provide ingress/egress and/or cross-easement agreement between adjoining property owners as needed. Off-site parking may be used to meet required parking spaces ~~only~~ if parking on adjacent property is excess parking beyond the adjacent properties minimum required parking, or if the uses occur at different times of the day or week (i.e. church/retail). Shared access roads also require cross-easement agreements. Provide deed book and page number of recorded agreement for verification.

2. Off street loading spaces - sites shall be designed and buildings shall be oriented so that loading areas are not visible from any of the perimeters adjoining any A, R, R-TH, R-MF, or O District or any public right of way with some exceptions in I-2 & I-3 and/or adjacent to limited access roads. Sec. 19-572

3. Check requirements for buffers adjacent to Residential or Agricultural zoning, in zoning case conditions, and along all roadways. Existing tree lines need to be shown on the grading plan to insure that limits of grading do not impact trees. Specify in erosion control narrative the installation of orange tree protection fence prior to clearing the site. Show location of tree protection fencing on the grading plan and show a detail of the tree protection fence. If silt

fence is absolutely necessary to prevent erosion and is located in the same location as the tree protection fence, the silt fence may serve as the tree fence.

4. Submit 2 copies of detailed landscape plan. Refer to attachment for landscape specification that need to be placed on the Landscape plan. Insure no deep-rooted trees are planted over utility easements. Landscaping plans may be submitted any time in the process. Note: Separate submission of landscaping plans counts as a separate submission of the site plan in terms of fee calculations.

5. All dumpster enclosures, external storage tanks and other outside storage areas shall observe the parking setback and/or the building setback of the zoning district.

6. Outside storage areas shall be visually screened from public streets, and properties that do not allow outside storage. Screening shall consist of durable architectural walls or fences constructed of comparable materials to the principal building and a compatible design to the building. Outdoor storage shall include the parking of all company owned vehicles, except passenger vehicles and vehicles that have cargo area directly accessible from the cab. Sec. 19-575

7. Make sure grading does not impact any tree save areas nor are utilities run through tree save areas other than perpendicular.

8. County Health Department must approve well and/or septic systems. Planning Department will route plans to the County Health Department (748-1698).

9. Furnish two (2) copies of lighting plan and lighting cut sheets of all exterior lights. If required, a footcandle output diagram must be provided. The diagram must indicate all exterior lights, building mounted and freestanding, with luminaries arranged so that illumination does not exceed 0.5 footcandles above background measured at the lot line of adjoining agricultural or residential zoned lots. Luminaries shall be of a directional type capable of shielding the light source from direct view. The lighting plan must be submitted prior to the building permit approval. Sec. 19-573

10. Identify existing utility pad fixtures. "Place note on landscape plans stating typical green transformers and other utility fixtures need to be screened on at least 3 sides with landscaping."

11. Outdoor recreational playfields, grounds and facilities and associated fences and enclosures must meet the front and corner sideyard building setbacks.

12. Approved site plans are valid for five (5) years. Phased improvements are to be listed as Phase A, Phase B, etc. and not as a future phase or improvement. Site work shown as "future" is not vested with plan approval and may require a new site plan for approval. Clearly show phase lines on plans.

13. Landscape plantings are to have water readily available to them. This can be through an irrigation system or with hose bibs. All plants are to be within 100 feet of a hose bib. Insure water information is supplied on Utility Department meter sizing forms.

14. Provide number of guest rooms and/or number of dwelling units, by floor for hotels and motels.

15. Identify all sidewalks, their width, and a detail for construction. Check for tie-in with sidewalks to or from adjacent properties.

16. Show any existing and/or proposed gas, power, and telephone lines and easements (if known).

17. Apartment projects need to list the number of one, two and three bedroom units.

18. Is an outdoor public address or intercom system proposed? Outdoor public address systems are not allowed, and intercoms are a restricted use beginning in C-2 Districts.

19. Provide two (2) copies of the sign package for projects.

SECTION E: ARCHITECTURAL CHECKLIST

Architectural Plan may be submitted any time in the process but before building permits can be released.

1. Provide two (2) copies of renderings/elevations of the building(s) with all building materials and colors identified. Elevations need to show all junctions and access boxes, mechanical equipment, and utility pad fixtures that are on or immediately adjacent to the building.

2. Screen junction and access boxes or paint to match the building.

3. Mechanical equipment, whether roof-top or ground level, shall be shielded and screened from public view and designed to be perceived as an integral part of the building. If necessary, submit a rooftop elevation plan showing the elevation of the rooftop, the parapet and the top of all rooftop equipment.

   Caution: check elevation of adjacent roads to see if parapet is high enough to screen equipment. Require cross-section if necessary.

4. If building is within a project, show how building is architecturally compatible with existing buildings. Sec. 19-570

SECTION F: LANDSCAPE CHECKLIST

LANDSCAPE PLAN REVIEW:

The landscape plan review may incur a review fee if submitted after the second site plan review is completed. Landscape plans that are submitted on the first or second site plan review submittal shall receive three (3) free reviews before the standard $325.00 fee for resubmitted plans is applied. Landscape plans that are submitted after the second site plan review is completed will receive free reviews only if the site plan requires additional submittals.

If the site plan is approved on the second review, a landscape plan submitted afterwards shall require a $325.00 resubmittal fee, with each review thereafter requiring a $325.00 resubmittal fee. There are two exceptions to the requirement for a resubmittal fee as follows:

1. Landscape plans that have buffers or setback areas with existing trees are allowed to have a free resubmittal after grading is completed to adjust the plan based upon the existing trees remaining.

2. Field adjustments due to non-availability of plants, underground utilities not known during the planning stage, or other site problems that affect the landscape plan are allowed a free resubmittal to correct the plan if the change is acceptable to the County, the owner, and the designer.

STANDARD NOTES REQUIRED ON LANDSCAPE PLANS:

1. Plant material sizes and grading are to comply with the latest edition of American standards for nursery stock, published by the American Association of Nurseryman.
2. Contractor shall ascertain location of all utilities prior to excavation. Prior to commencing any work, contact "Miss Utility" at 1-800-552-7001.

3. No changes to plant schedule unless first approved by the Chesterfield County Planning Department Plans Review Section.

4. Landscaping will be designed so as not to interfere with sight distance needs of drivers in the parking areas and at the entrance/exit locations.

5. Plant material quantities and sizes will be inspected for compliance with approved plans by a site plan review agent of the Chesterfield County Planning Department prior to the release of the certificate of occupancy.

6. The owner is responsible for maintaining shrubs and trees that are required per approved landscaping plans. Dying or dead plant materials are to be replaced during the next planting season.

7. Plant materials shall have all strings or ropes at the base of the plant cut away from the trunk (including biodegradable brands of rope).

8. No landscaping shall be installed that obstructs access to fire hydrant or other Fire Department connections. A clear area of 5' shall be maintained around all Fire Department connections.

ALSO SHOW ON THE LANDSCAPE PLAN THE FOLLOWING:

1. Provide calculations showing the length of each setback area and the numbers of large and small maturing deciduous trees, evergreen trees, medium shrubs and small shrubs/groundcovers required and provided for each setback. If additional landscaping beyond the amount required by the county is to be provided, please indicate such materials on the plan so that the county will not inspect or require additional plans for a certificate of occupancy.

2. Put a plant material schedule on the plan showing both common and botanical names for each plant and show the size required by the Ordinance. Specify for each plant species whether it is a large maturing or small maturing deciduous tree, evergreen tree, medium shrub or low shrub/groundcover.

TRANSPORTATION DEPARTMENT & VDOT

1. Proposed use and size of buildings (used to calculate ADT)

2. Existing and ultimate right of way lines (include State Route #'s)

3. Existing roadway geometrics to include:

    a. lane and shoulder widths
    b. location of existing median openings on divided highways adjacent to and within 500' of the site parcel

4. Proposed road improvements shown on VDOT/County construction plans or adjoining development plans where applicable.

5. All existing and proposed access points for the site parcel.

6. All existing and proposed access points for adjacent parcels within 500' of site parcel.

7. Location of easements:

    a. public and private access easements on or serving the site parcel
    b. public and private sight distance easements on or serving the site parcel
    c. water, sewer, telephone, and gas easements on the site parcel (as may impact access and circulation, existing and proposed if known)

8. Road improvements to be provided with site development to include:

    a. any revisions to roadway typical section
    b. traffic signals (where commitment exists for installation or already existing)

9. On site information regarding traffic flow:

    a. driveway locations including widths and radii
    b. parking spaces, drive aisles, loading areas
    c. aisle widths, including direction of travel for each lane
    d. traffic control devices
    e. numbers and location of stacking spaces for drive in facilities
    f. internal sight distance protection

10. Proposed phasing of any portion of development or required improvements.

Chesterfield Fire Department

Commercial Site Plan Submissions
Minimum Information Required

INFORMATION REQUIRED ON ALL SITE PLANS SUBMITTED FOR REVIEW:

- ☑ Location of all fire lanes with details of curb marking and sign locations. **Approximate locations of fire lane signs shown on plan by symbol.**

- ☑ Location of fire department connections for fire protection systems such as sprinkler, standpipes, etc. shall be shown on the site plan.

- ☑ **Location and type of any proposed hazardous materials storage areas, inside or outside. Quantity of hazardous material listed by type, container size, and quantity.**

- ☑ Arrangement of water supply piping for fire protection, including the location of any backflow prevention devices.

- ☑ **Calculations of the fire flow required for the site shall be shown on the site plan. An approved computer generated flow test shall be shown on the site plan verifying that the needed fire flow (NFF) is available on site.** Location of any fencing, temporary or permanent, or any other potential obstruction to hydrants, fire department connections or fire lanes. **The computer generated fire flow shall be shown on the site plan as part of the site plan submittal.**

- ☑ Buildings which will be equipped with an automatic fire sprinkler system shall have the following note added to the plans: "Approval of site plan does not include the design of the fire sprinkler system underground piping from backflow prevention device to one foot above finish floor level. Prior to installation, shop drawings and a separate permit application and must be submitted through the department of building inspections for review and approval."

Questions ? Contact the Fire Prevention Bureau, Plans Review Section, at (804)748-1404.

Site Access & Fire Lanes

☑ A minimum of two access points from a public street should be provided to all building sites. When more than 50 residential type units are to be constructed, a minimum of *two remotely located* access locations shall be provided.

☑ When two remotely located access points are required, the minimum centerline to centerline separation shall be at least 1000 feet.

☑ Access roads to residential and institutional type developments shall be a minimum 24 feet in width and must be paved with asphalt or concrete. When approved by Chesterfield Planning Department, all other access roads may be constructed of an all weather gravel surface. **Construction details of all weather roads shall be shown on the site plan. Provide calculations to verify that the road design will be capable of supporting a minimum impose weight of 75,000 pounds under all conditions.**

☑ Minimum entry width and radius requirements as specified by Virginia Department of Transportation and Chesterfield Department of Transportation shall be met.

☑ Buildings exceeding 50,000 square feet in area on any floor shall have *Fire Lanes* around the entire perimeter of the building. When an automatic fire sprinkler system is installed throughout the building, *Fire Lanes* are required on the two opposing longest sides of the building. *Fire Lanes* shall be within 30 feet of the building exterior wall.

☑ Buildings not exceeding 50,000 square feet in area on any floor shall have *Fire Lanes* on the two opposing longest sides of the building. When an automatic fire sprinkler system is installed throughout the building, *Fire Lanes* are required on at least two adjacent sides of the building. *Fire Lanes* shall be within 30 feet of the building exterior wall.

☑ Multistory residential, health care or hotel type buildings shall have fire lane access around the entire perimeter of the building unless otherwise approved by the Fire Department.

☑ Dead end fire lanes shall not be permitted. An approved turn around space shall be provided on all dead end fire lanes in excess of 100 feet in length. **This may be in the form of a hammerhead, tee or cul-de-sac. A through road is also an acceptable of providing for turn around space.**

☑ Minimum Outside Turn Radius for use in design of *Fire Lanes* and turn around spaces shall be 42 feet. The turn around radius and curb radius indicating the required 42-foot access radius shall be show on the site plan.

☑ Fire lanes shall be constructed of an all weather surface capable of supporting fire-fighting equipment. Asphalt or concrete paving shall be provided unless otherwise approved by the Fire Official. Fire Lanes shall be designed to support a minimum 75,000 lbs vehicle load under all conditions.

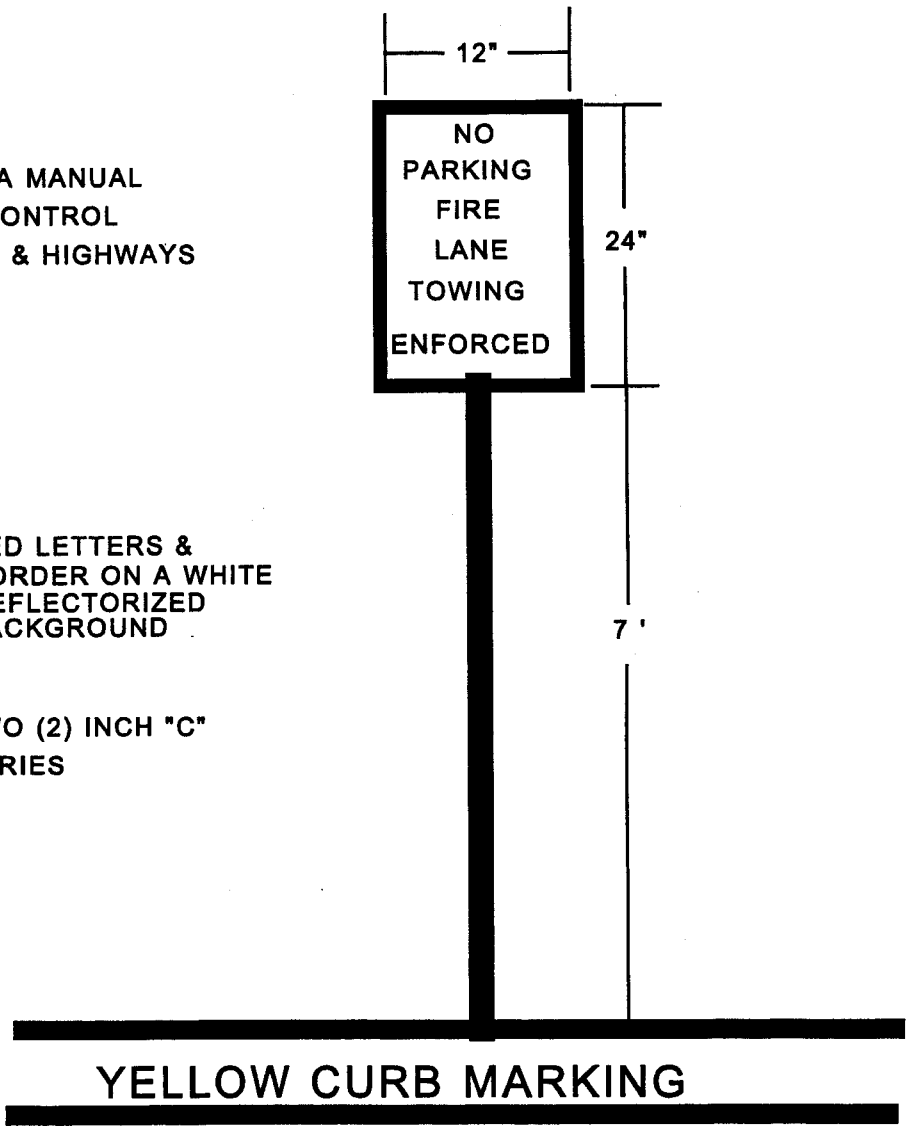
☑ Minimum width of all *Fire Lanes* shall be 20 feet unless approved by the Fire Official.

☑ When fire or ambulance access is required to pass under a drive-thru type canopy, the minimum clear height under the canopy shall be 14 feet. This clearance may be reduced upon approval by the Fire Official.

☑ Fire lane locations shall be determined by the placement of fire hydrants and connections to any fire protection systems located within the building, as well as by the building design, site accessibility and site traffic flow characteristics.

☑ If any building area increases are to be applied in a accordance with the provisions of Chapter 5 of the Virginia Uniform Statewide Building Code, it is the responsibility of the site designers to coordinate fire lane locations with the building designer. **Fire lane locations shall be clearly indicated on the submitted site plan. Approximate location of all fire lane signs shall be shown on the submitted site plan.** Yellow curb marking and approved signs, posted at 75' to 100' intervals shall be the standard means by which to delineate fire lanes. Street marking of fire lanes shall be provided when curbing is not present.

REFER TO THE VIRGINIA MANUAL
OF UNIFORM TRAFFIC CONTROL
DEVICES FOR STREETS & HIGHWAYS



SIGN COLOLRS: RED LETTERS &
BORDER ON A WHITE
REFLECTORIZED
BACKGROUND

LETTERS: TWO (2) INCH "C"
SERIES

Signs and markings to delineate fire lanes shall be provided and installed by the owner or his agent prior to building occupancy.
When determined necessary by the Fire Official, additional pavement markings may be required.

FIRE
HYDRANTS

Hydrant locations shall be clearly shown on the submitted site plan. Hydrant installation details shall be in accordance with the **Chesterfield Dept. of Utilities Water & Sewer Specifications & Procedures Manual.**

☑ The number of hydrants required shall be based on:

Needed Fire Flow (NFF): One hydrant shall be provided for each 1000 gpm, or fraction there of, based on the calculated fire flow required.

Remote location: The first required hydrant shall be located within 400 feet of the most remote exterior point of the building. Hose lay distance shall be measured along the natural and unobstructed path of travel. When a second hydrant is required based on the Needed Fire Flow, it shall be located within 750 feet of the most remote exterior point of the building. Additional hydrants required shall be located within 1000 feet of the most remote exterior point of the building.

When the building is equipped throughout with an approved automatic fire sprinkler system the maximum hose lay distance may be increased to 600 feet. A second hydrant shall be required accessible to the site within 1500 feet of the most remote exterior point of the building.

All hydrants shall be located a minimum of 40 feet from the building exterior wall.

Location of the Fire Department Connection for any Fire Protection Systems: Hydrant shall be provided within 50 feet of the fire department connection to any fire protection systems located within the building. The fire department connection to the sprinkler system should be located at the backflow prevention device vault when possible. The location shall be accessible near the main project entry drive when feasible.

☑ Hydrants and Fire Department Connections to sprinkler systems shall remain clear and unobstructed by landscaping, parking or other objects. **No landscaping of any type shall be planted within a five-foot radius of any fire hydrant or fire department connection. Landscaping in the area of fire hydrants and fire department connections shall be of the type that will not encroach on the required five-foot clear radius on maturity of the landscaping.**

☑ Hydrants and Fire Department Connections to sprinkler systems shall be located where they are accessible from designated fire lanes or other routes as approved by the fire official. **Parking stalls shall not be placed in front of the access to fire hydrants, fire pump test headers, fire department sprinkler system connections or fire department standpipe connections.**

☑ Hydrants shall be located not more than 12 feet behind the face of curb or edge of pavement, unless approved by the fire official.

No consideration will be given to off-site hydrants unless they are shown on the plan submitted for review.

FIRE FLOW

Needed fire flow (NFF)calculations shall be shown on the submitted site plan. Calculations shall be submitted as a part of the site plan submission. Fire flow estimates shall be calculated in accordance with the procedures set forth in the latest edition of the **National Fire Protection Associations Fire Protection Handbook,** as referenced in the **Chesterfield Dept. of Utilities Water & Sewer Specifications & Procedures Manual.**

I.S.O. METHOD OF CALCULATING THE NEEDED FIRE FLOW (NFF)
NFF = (Ci) (Oi) (X+P)I

Ci = 18F multiplied by the square root of (Ai)
F = coefficient for the class of construction
Ai = effective area
Oi = occupancy factor
Xi = exposure factor
Pi = communication factor

Needed fire flows in buildings equipped throughout with an approved automatic fire sprinkler system shall be the greater of 1000 gpm plus the sprinkler demand OR the sprinkler system demand plus the hose stream allowance as set forth in the sprinkler system design standard, such as NFPA 13, 231 or 231C.

For complete information on factors and alternate methods of calculation see the AMERICAN WATER WORKS ASSOCIATION MANUAL OF WATER SUPPLY PRACTICES, DISTRIBUTION SYSTEMS REQUIREMENTS FOR FIRE PROTECTION (AWWA M 31) or THE N.F.P.A. FIRE PROTECTION HANDBOOK.

It is the owner/designers responsibility to coordinate building and site design factors in order to accurately calculate the needed fire flow (NFF).

UTILITIES DEPARTMENT

Water and Sewer Checklist

1. Sheet index and materials list provided.

2. Legend of sanitary sewer and water lines, other utilities and structures existing and proposed ground and pavement profile. Profile information must be shown on profile sheet.

3. The utility plan includes an overall plan of the water and sewer layout, including any phasing of the development.

4. Engineer and/or Surveyor has notified all off-site property owners where water and sewer easements are existing (copy of such notification is attached).

5. Water and Sewer Notes (as a minimum, reference has been made to County Standards, Specifications and details).

6. Vertical scale is 1" = 5' or 1" = 10' ; and horizontal scale is 1" = 50' or as approved by the County.

7. All water and sewer designs conform to the latest County, State and Federal regulations or standards.

8. If irrigation and/or fire suppression is required, show how the water is to be obtained.

9. Flow test (will be prepared by the Utilities Department upon a written request).

10. All water, sewer, road and drainage structures are shown on one plan sheet, where applicable. May require larger scale to adequately obtain horizontal integrity.

11. Existing water and/or sewer lines are properly labeled with size, type material and County project number and with horizontal and vertical distances referenced on the plan.

12. A benchmark is required on the site plan.

13. All existing easements are shown accurately and proposed utility easements are shown on plans. The existing easements reflect accurate recordation information.

14. All existing and proposed storm sewer lines, gas, telephone, power, and other utility lines, which cross or run parallel to the sewer or water lines, are shown with exact horizontal

and vertical separations given, where applicable. Subsurface exploration has been performed where potential conflicts exist, where applicable.

15. Adjacent road and drainage projects are shown as required.

16. Consideration has been given to areas where roads and drainage structures may be lowered in the future.

17. Plan and profile are drawn in the same direction. Stations shall ascend from left to right.

18. Proposed utilities lines are shown with reference distances from right of way, boundary, buildings, other utility lines, etc.

19. Locations of existing houses, buildings, fences, wells and other structures as shown on the plans.

20. Locations of special features (conc. Encasement, rip-rap stabilization at creek crossings, clay dams, etc.).

21. All fill and cut areas are shown for sewer and water.

22. Location and size of all water and sewer connections.

23. Miss Utility notation is shown.

24. All revisions shall include an explanation either on the plans or by separate transmittal.

25. All sanitary sewer plans are labeled with size, grade, length, direction of flow, and type and class of pipes (with backup calculations on the type and class pipe needed, where applicable).

26. Manholes shall be labeled with top and invert elevations; coordinates; and location, size and inverts of drop stacks when a vertical drop exceeds two (2) feet.

27. Deflection angles at all manholes or bearings of all lines are shown the plans.

28. A sewerage drainage area map with hydraulic analysis is included in plans, if applicable.

29. The engineer has field verified the inverts of the existing manhole(s). If the invert is different from the as-built plan, the engineer will verify his survey work and notify the Utilities Department of the discrepancy.

30. All manholes are designed to an elevation above the 100-year flood plain elevation as set forth in the design standards, unless otherwise approved by the Utilities Department.

31. Ground coverage over sewer pipe meets minimum criteria.

32. Engineer has put a notation that a backwater valve is to be used where the building with a finished floor elevation of the building is below the top elevation of the nearest upgrade manhole from the building connection.

33. Where the sewer lines are in excess of 12' deep, the Engineer has identified where the sewer lateral must be installed in accordance with the standard details and the appropriate notes are reflected on the plans.

34. Maintain greater than the 0.4% minimum slope whenever possible.

35. Solid lines have been used for proposed sewers, short dashed lines for existing sewer and label future sewer or portions covered under other phases of construction.

36. A minimum of ten (10) feet horizontal separation is maintained between sewer lines and water lines, sewer laterals and water meters or water blowoff devices (flushing hydrants) and between sewer line and storm drainage structures, unless otherwise approved by the Utilities Department.

37. All silt basins and BMP's are shown and the sewer lines and manholes have been designed around these structures, unless otherwise approved by the Utilities Department.

38. All existing sewer laterals are shown on the plans, with station, length and depth, as depicted on the as built plans.

39. All sewer lines are designed with the entry into the manhole by the proposed sewer lines at an angle of 90° or greater to the downstream line, or if an exception has been granted, the engineer has increased the drop through the manhole to compensate for the reduced angle and has provided an blowup detail for the appropriate invert shaping that achieves the same results as a 90° or greater entry.

40. The crowns of all sewer lines enter the manholes at crown's level or higher as specified in the design standards.

41. Where new manholes are proposed over existing lines, distance from the new manhole to the two existing manholes is shown; inverts of the manhole and each existing manhole are shown; slope of existing line from the new manhole to upstream and downstream existing manholes is shown.

42. All manholes proposed within areas where vehicles travel are to be located either on centerline of the road or center of the traveling lane.

43. Sampling manholes are required for new facilities currently regulated by local or federal industrial waster pretreatment laws. Appropriate measures have been included in the design to allow for sampling of industrial waste. A sampling manhole shall be provided at the property line to facilitate random 24-hour composite sampling. In those cases where a private manhole on site can be utilized for this function, adequate provisions will be agreed upon to facilitate sampling. Provisions include ingress/egress to the private manhole, ability to sample, and adequate space to set a 24-hour composite sampler. Existing on site manholes, possibly inside buildings, will be approved on a case-by-case basis.

44. At all existing manholes, the engineer has provided the manhole number as reflected on the as-builts, and the County project number associated with the existing manhole.

45. Plans show all fittings, fire hydrants, and valves including sizes. Each appurtenance is properly labeled.

46. A minimum of eighteen (18) inches of vertical clearance has been designed and obtained at all crossings of other utilities, or as specified by other utility agencies, or otherwise approved by the Utilities Department.

47. All water lines have a minimum of 3.5' of cover.

48. Fire hydrants and air relief valves are shown on plans and profile.

49. Hydrants or blow-off valves are designed at major low places in the line where possible and air release valves are designed at the high points.

50. All water services are shown in accordance with the design standards.

51. Engineer has designed the water system in accordance with available pressures and has provided fire flow and pressure calculations.

52. Pipe sizes noted on the plans.

53. Where pipe size is not determined by the Utilities Department, line size calculations are to be submitted with the plans, pressures to meet the required minimum standards.

54. Ditch lines are shown on the plan and depth of ditch(s) are shown on the profile at the fire hydrant locations and services lines, where necessary.

55. Water line stubs for future extensions are designed to be installed beyond the edge of pavement.

56. Location of water meter boxes are shown outside of non-vehicular traveled areas. Where it is not possible to locate the boxes out of the driveways, and/or vehicular traveled area, a cast iron box is specified.

57. For water line tie-ins, the engineer has shown the valve to be used for cut off during the tie-in. Where tapping the main line vs. Cutting in a tee is applicable, the engineer has evaluated which method will be used as outlined in the County's Design Standards.

58. Necessary easement plats on-site and/or off-site have been submitted for processing by the right of way section. Plats concur with Exhibit A at the end of the checklist.

59. The engineer understands that any changes made to the road, drainage, water and/or sewer design will require a submittal to the Utilities Department for review and approval of the revised water and sewer plans reflecting those changes.

60. If the waterline is greater than sixteen inches in diameter and/or the sewer serves over 400 people, plans need to be submitted to the Virginia Department of Health for review and approval. A copy of the transmittal letter must be attached to the engineer's checklist when the checklist is submitted.

61. If horizontal bore is required, bore location, length of bore, pit location (average 8' x 35') are shown and shown in relation to all existing and/or proposed utilities on the plan and profile.

62. Utility plans reflect those conditions as approved by the Planning Commission/Board of Supervisors.

63. Engineer has contacted Virginia Power and received as-built information. Utility plans reflect this information accurately and is in accordance with the "Overhead High voltage Line Safety Act."

64. A NOTE stating that the contractor must field verify the inverts of all existing manholes, gas lines, other utility lines prior to the start of construction.

65. All pipe between manholes are of like material and class.

66. Knockdown meter box shall not be located within any travel areas.

Please complete this form and submit to the Planning Department with your revised site plan.

SITE UTILIZATION SURVEY

Name of Proposed Company:
Proposed Site Location:

Type of Company Activity:

_____ Commercial
_____ Residential
_____ Office
_____ Manufacturing/Industrial
_____ Food Service
_____ Warehouse/Distribution
_____ Service Related
_____ Other: _____

Description of Company Activity: _____
_____
_____

If manufacturing, description of products, by-products and waste products generated:

_____
_____

Company Contact Person:

Name: _____
Title: _____
Address: _____
Phone Number: _____

Department of Utilities
Chesterfield County, Virginia
Procedure for Estimating Customer Water Demand

1. Determine the number and type of water fixtures needed and list on page 2 where appropriate.

2. Calculate the combined fixture value: Go to page 2 Part A, multiply the fixture values times the number of fixtures to obtain the Total Fixture Value for each type. Add all total fixture values and place answer on Line A.

3. All other demands not listed in Part A shall be substantiated with data furnished by the owner's engineer and/or his agent. If it is necessary to have a fixed demand and/or an

Caution: The person completing Part B of this form needs to include all water demands necessary for the building(s) and/or its' intended use. For conversion from combined Fixture Value to gpm, refer to Figures 4.4 and 4.5 of the AWWA Manual of Water Supply practices No. M22, latest revision.

4. If you install water saving flush valve water closets, the County's virtual meter policy may apply.

5. Upon completion of this form, send to the following address:

Chesterfield County Department of Utilities
New Construction Section
P. O. Box 40
Chesterfield, Virginia 23832

6. County will size the service based on the information you have provided.

RIGHT OF WAY
PLAT CHECKLIST

This information is required when rights of way or easement are being dedicated by separate plat.

1. Present living property owner(s) names, deed book or will book and page when property was acquired.

2. Metes and bounds description of the area to be conveyed, based on the Virginia State Standard Engineering Plane Coordinate System, South Zone, NAD 83.

3. Show any other easements, including recordation information (deed/plat book & page numbers), adjoining, overlapping, and conflicting with the proposed easement.

4. Tie boundary of easement and/or proposed deeded area to property lines, corners, and give a direction and distance to the closest road intersection or major topographical feature.

5. Give complete curve data, chord bearing and distance width of roads, names and route numbers of roads.

6. Show all 15 digits of the parcel identification number; if in a subdivision, lot, block numbers, name and section of subdivision; parcel street address.

7. North arrow (NAD 83 noted), scale, date and revised dates (if any) of plat; 2 coordinate points (minimum).

8. Existing property markers (pipe, rod, stone, etc.), property lines and adjacent property identification must be shown.

9. Title, type of easement, magisterial district, county and state.

10. County Project number & County Case/Site Plan numbers are required on the plats.

11. Plats should be 8 ½" x 11" (preferably), 8 ½ inch x 14 inch, or 16 inch x 24 inch, (subdivision size). Any other size plats will not be accepted by the Clerk's Office for recordation.

12. Four copies of the plat with surveyor's or engineer's seal and live signature should be submitted for each easement or deed of dedication.

13. Standard engineering scale (1"=10', 1"=20', 1"=30', 1"=40', 1"=50', 1"=60', 1"=100', 1"=200') Bar scale required.

14. If metric plans, as required for highway projects, are submitted, metric plats will also be required. Easements or parcels shall be expressed in metric terms (meters, hectares, etc.) And scales provided at 1:100, 1:200, 1:250, 1:300, 1:400, 1:500.

15. The plat that is submitted must match the approved plans.

16. Must meet Circuit Court, Clerk's office recording requirements.

RIGHT OF WAY
PLAN CHECKLIST

1. When easements or right of ways are required to be dedicated, they need to be clearly shown on a separate easement/right of way plan sheet.

2. On this sheet, only easements and right of ways conveyed to the County should be shown.

3. Metes and bounds are required for variable width easements and all parcels for dedications. Centerline data is only acceptable for standard width easements.

4. Show all existing off-site easements that affect this project, along with their deed/plat book and page references.

5. Show all on-site easements that affect this project, along with their deed/plat book and page references.

6. The easements must be labeled properly so that the proper agreement is prepared.

7. All curve data, including chord and chord bearings must be shown on easements, parcels and roads.

8. Subdivisions need to be labeled; name, section, block, lot, plat book and page.

ENVIRONMENTAL ENGINEERING DEPARTMENT

The following are items that must be either addressed through site design, depicted on site plans or are cautions which are intended to ease your plan approval and construction activities.

General Checklist/Cautions

1. It is the responsibility of the applicant to comply with and/or acquire all applicable federal and/or state permits in relationship to environmental features including but not limited to "wetlands, surface waters (e.g. VPDES permit for construction sites of 5 acres or more), ground water and air quality". Final approval of these plans will not relieve you of your responsibility.

2. An erosion and sediment control program administration fee must be submitted prior to any additional review by this department.

3. A north arrow must be shown.

4. A location map must be shown on the plans.

5. The name, "walk-in address", and telephone number of the owner and developer must be shown on the plans.
6. The plans must bear a signed certification seal of a professional engineer, certified land surveyor, or architect.

7. The certification seal of the professional engineer, certified land surveyor, or architect must be signed with an original signature and dated. See Section 18 VAC 10-20-760, Paragraph B.1 of the Board for Architects, Professional Engineers, Land Surveyors, & Landscape Architects Rules And Regulations.

8. A benchmark must be shown with reference to mean sea level.

Drainage/Construction Checklist

1. A drainage area map is required for all on-site and off-site drainage areas. (Maximum scale of 1"=200') Both existing and proposed contours are required.

2. It is acceptable but not advisable to show hydrological and hydraulic calculations on the plans. A revision to the calculations can be handled between the design engineer and the review engineer when they are a separate submittal. When they are shown on the plans, a complete resubmittal of the plans to the Planning Department is required.

3. Existing and proposed grading contours must be provided on the plan and must have their elevations clearly labeled.

4. The proposed rip-rap lined channels must specify a minimum of 24" of VDOT CL. I Rip-Rap placed over a layer of filter cloth.

5. In the absence of a detailed soils report, the maximum velocity allowable on bare earth is 3.5 FPS. Velocities between 3.5 FPS and 4.0 FPS require a jute lining and any velocities greater than 4.0 FPS require a structural lining of either rip-rap or concrete.

6. All roof water and downdrains must be collected and discharged in a non-erodible manner.

7. A VDOT standard endwall is required on all multi-line structures, structures with diameters greater than 30", and when the structure is proposed on a slope of 15% or greater.

8. In accordance with Chesterfield County's Flood Plain Management Ordinance the proposed building must be floodproofed to an elevation equal to one foot above the base flood.

9. Where floodproofing is required, a registered professional engineer or architect shall certify that the floodproofing methods are adequate to withstand the flood depts, pressures, velocities, impact and uplift forces and other factors associated with the base flood prior to approval of the building permit by the Environmental Engineering Department.

10. Calculations must be submitted to support the design of all proposed culverts, open ditches, drop inlets, and storm sewers on VDOT Standard Calculation sheets.

11. Hydrologic calculations must be submitted to support the discharges used in any hydraulic design or analysis.

12. Hydraulic grade line calculations are required to support the design of all proposed storm sewers.

13. The pipe barrel capacity based on Mannings equation must be greater than the design discharge for the contributing drainage area for all sections of storm sewer.

14. Profiles must be shown for all proposed storm sewers and outfall channels.

15. All existing and proposed storm sewers, culverts, drop inlets and appurtenances must be assigned a structure number and listed in tabular form on the plan sheet on which they are located.

16. Invert elevations must be shown for all drainage structures.

17. The throat length for all curb drop inlets must be shown.

18. Inlet shaping std. IS-1 must be specified in the tabular drainage description for each manhole and drop inlet in which it was used in the hydraulic grade line calculations.

19. Inlet shaping is restricted to pipe diameters of 30" or less and to situations where one pipe enters the chamber and one pipe exits the chamber. Storm sewers with pipe diameters of 30" and above shall qualify for the 50 percent reduction in junction losses only when pre-cast tees and elbows are used.

20. A detail must be shown on the plans for inlet shaping std. IS-1.
If inlet shaping cannot be accomplished within the standard structure, then details must be provided for the modifications necessary to the structure to accomplish inlet shaping.

21. Steps std. ST-1 must be specified in the tabular drainage description of any structure over 4 feet in height.

22. Top of curb elevations must be shown at the nose of all radial curb and at all appreciable breaks in horizontal or vertical alignment.

23. Dry gutter is required where runoff flows away from the face of curb. These areas must be cross-hatched and a detail provided on the plan for construction of dry gutter.

24. The symbol used for dry gutter on the plan view must be shown adjacent to the detail for its construction.

25. For any modified item on the plans, a note must be added to reference the plan sheet where the detail for the modified item can be located.

26. A detail must be shown on the plans which demonstrates the ability to obtain a minimum of 2' of horizontal backfill behind the curbing and drop inlets prior to beginning a backslope which cannot exceed 2:1 without encroaching onto any adjacent property. The detail must be to scale.

27. The finished floor elevation of all structures must be shown.

28. The limits of the 100-year flood plain must be shown.

29. All existing and proposed drainage easements must be shown.

30. The deed book and page number of all existing drainage easements must be shown on the plan.

31. A separate plan sheet must be added which only shows all proposed easements and right of way to be dedicated. Metes and bounds must be provided.

32. Drainage easements must be shown along any stormwater conveyance system which receives runoff from offsite, from a public right of way or requires improvements on a downstream property owner.

33. Metes and bounds must be shown for all proposed drainage easements.

34. If phasing is desired, phase lines must be shown and a phased erosion control plan and narrative must be provided.

35. Bituminous curbing (std. MC-3A) is required along the edge of pavement separating the different phases of the project.

36. All areas of proposed pavement must be stippled.

37. A pavement design is required for all paved areas.

38. The radius of all radial curbing must be shown.

39. Unless the carwash is using a recycle system for the water, it must be connected to the sanitary sewer, or obtain a VPDES permit from D.E.Q.

40. Due to the high possibility for spills of oil, gas, anti-freeze, etc. an oil-grit separator must be installed. Design calculations must be submitted and details provided on the plans for its construction.

Erosion Control Checklist

1. If timbering is required on the project, it should be incorporated into the erosion control plan/narrative and should not begin until after the issuance of a land disturbance permit and the installation of the approved erosion control devices.
2. An erosion and sediment control narrative is required which includes a detailed sequence of construction which coordinates the installation and removal of the erosion and sediment control measures with construction of the remainder of the project.

3. A note must be added to the plans which requires the owner to give the county inspector 48 hours notification to schedule an on-site pre-construction meeting for the issuance of a land disturbance permit. This note should be the first step in the erosion control narrative/sequence of construction.

4. Steps must be included in the sequence of construction events for installation of storm sewer, drop inlets, inlet protection, curb and gutter, and building construction.

5. Provisions must be made in the narrative to allow all proposed sediment traps and basins to remain in place until all onsite contributing areas are stabilized.

6. The erosion control narrative and erosion control legend must be shown on the erosion control plan sheet(s) or E.C. detail sheet.

7. The construction entrance must be graphically shown on the plans and constructed as wide as the proposed permanent entrance.

8. Erosion control measures must be provided for the project for the initial clearing, grubbing and grading operations. The drainage areas must be outlined and the sediment trapping facilities designed on the worst case scenario.

9. The sediment basin(s) must be designed in accordance with std. & spec. 3.14 of the VESCH. Sediment Basin Design Calculation sheets must be submitted with all design data addressed and all construction details included on the plans.

10. A profile view must be provided for the sediment basin which shows all the detailed construction information determined on the Sediment Basin Design Calculation sheets.

11. The drainage area, spillway length, and dimensions necessary to achieve the required storage volumes in accordance with std. & spec. 3.13 must be shown. The elevations of the trap bottom, top of wet volume, top of dry volume, and top of embankment must be shown on the sediment trap detail.

12. Please specify if the length and width dimensions for the sediment trap(s) refer to the bottom or top of the excavated area.

13. All the information necessary for construction of the sediment trap(s) must be shown on the sediment trap detail.

14. Safety fence (std and spec. 3.01) must be provided around all sediment basins and traps during construction.

15. A minimum, 10' break must be provided in the low area of the silt fence. The break must be backfilled with stone to within 1' of the top of the silt fence to serve as an overflow. A detail must be shown.

16. A note must be added to the plans as follows: "All vegetative and structural erosion and sediment control practices will be constructed and maintained according to minimum standards and specifications of the Virginia Erosion and Sediment Control Handbook and Virginia Regulation VR 625-02-00."

17. All erosion and sediment control measures, std. & spec. numbers, details, and notes must correlate with the 1992 edition of the Virginia Erosion and Sediment Control Manual and Minimum Standards.

18. All erosion and sediment control measures shown on the plan must be cross referenced to the respective std. & spec. number found in Chapter III of the Virginia Erosion and Sediment Control Handbook.

19. Standard symbols must be used to represent erosion control measures on the plan. Please refer to the first page of the practice found in Chapter III of the Virginia Erosion and Sediment Control Handbook.

20. A detail must be shown on the plans for each structural erosion control measure. Details can be found on Chapter III of the Virginia Erosion & Sediment Control Handbook.

21. The following note must be added to the plans: "The contractor shall inspect all erosion control measures periodically and after each runoff producing rainfall event. Any necessary repairs or cleanup to maintain the effectiveness of the erosion control devices shall be made immediately.

22. The following note must be added to the plans: "All disturbed areas are to drain to approved sediment control measures at all times during land disturbing activities and during site development until final stabilization is achieved."

23. The following note must be added to the plans: "The contractor is responsible for the installation of any additional erosion control measures necessary to prevent erosion and sedimentation as determined by the Environmental Engineering Department."

24. Erosion control minimum standard #1, found in the current edition of the Virginia. Erosion And Sediment Control Handbook, must be added to the plans and all other notes which are in conflict must be adjusted or removed.

25. The exact limits of land disturbance must be shown.

26. A MS-19 Analysis must be performed at each point of concentrated discharge and at the downstream property line.

27. Existing inadequate culverts in County easements and under state roads into which a project drains must be enlarged or on site detention based on the ultimate development of the contributing watershed provided to achieve minimum 10-year storm performance of the pipe(s).

28. When using the modified rational method for approximating an outflow hydrograph, Method "I" must be used instead of Method "T".

29. Storms of multiple durations must be investigated to determine the maximum volume requirements. To use this method, leave the Td field (storm duration) blank when entering data for the modified rational option.

30. A temporary slope drain (std. & spec. #3.15) must be provided to convey runoff from the top of the finished slope to the bottom and ten into a sediment trapping facility.

31. Inlet protection (std. & spec. # 3.07) is required for all drop inlets.

32. The detail shown for curb inlet protection must be changed to the one shown on Plate 3.07-8 of Standard and Specification # 3.07.

33. The detail shown for grate inlet protection must be changed to the one shown Plate 3.07-3 of Standard and Specification # 3.07.

34. Notes A thru E of Minimum Standard 16 must be shown on the plans.

35. A detail must be shown which provides for placement of excavated trench material on the uphill side of the trench while silt fence and stockpiled materials are placed on the downstream side.

36. Any soil stockpile area must be located on the plans. Silt fence must be provided around the perimeter if it is located outside the perimeter erosion controls for the site.

37. Each sediment trap and sediment basin must be assigned an alpha or numeric designation and their installation sequence individually noted in the erosion control narrative.

38. The following note(s) must be added to or adjacent to the erosion control narrative/sequence of construction:

    a. All offsite drainage easements must be recorded prior to issuance of a land disturbance permit for this project.
    b. All onsite drainage easements including SWM/BMP drainage easements must be recorded prior to issuance of a building permit for this project.

    c. The accumulated silt must be removed from the sediment basin(s) prior to conversion to a permanent SWM/BMP.

d. All the components necessary for construction of the sediment basin(s) must be onsite prior to issuance of the land disturbance permit.

e. The SWM/BMP facility must be certified by a professional engineer prior to issuance of any occupancy certificates.

f. A VDOT land use permit is required for this project prior to issuance of a land disturbance permit.

g. At the time of the pre-construction meeting, two standard signs must be installed on each side of the construction access. These signs may be installed on tripod devices and should state either "Construction Entrance Ahead" or "Trucks Entering Highway".

Chesapeake Bay Preservation Act Checklist

1. This site must be resubmitted and designed in relation to the Chesapeake Bay criteria in order for the Engineering Department to provide a complete review.

2. Please show on the first sheet, using a highly visible note, how compliance with the Chesapeake Bay Preservation Ordinance has been accomplished.

3. The name of the person who performed the CBPA Opt-Out and date of the approval by this office must be shown on the first sheet of the plans.

4. A data map must be submitted which outlines all drainage areas, impervious areas (existing and proposed), RPA and RMA limits, etc. which were utilized in determining compliance with the Chesapeake Bay Preservation Ordinance.

5. The opting out documentation for compliance with the Chesapeake Bay Ordinance has been submitted to Mr. Ralph Mendenhall for his review. As of this review it has not been approved.

6. A letter must be submitted from a qualified expert which states, "I have performed a field study of the above property for the purpose of determining the limits of all Chesapeake Bay Preservation areas as defined by the Chesapeake Bay Preservation Ordinance for Chesterfield County. Based on that study, I certify the following characteristics necessary for classification as a RMA do not exist."

    1. Non-tidal wetlands
    2. Highly erodible soils
    3. Highly permeable soils

4. Steep slopes
5. 100-year floodplains

7. A copy of the wetland delineation signed by the wetland expert must be submitted confirming the wetland limits shown on the plan.

8. All points of concentrated inflow to the SWM/BMP facility must tie into the basin at the normal water surface or below, if the outfall is submerged, a minimum of 3 feet is required between the invert of the inflow structure and the bottom of the basin.

9. A std. ES-1 endsection is required for all pipes 30 inches or greater in diameter entering and exiting the SWM/BMP facility.

10. A minimum of 25 feet is required between the riser assembly and the edge of the embankment measured across the normal water surface elevation.

11. The entire basin must be enclosed within an SWM/BMP easement which extends 8 feet beyond the 100-year WSE or TOE of the embankment whichever applies.

12. A minimum 20' wide access easement must be provided from the SWM/BMP easement to a public right of way for future maintenance.

13. Metes and bounds must be provided on the plan sheet for SWM/BMP easements and access easements.

14. All SWM/BMP facilities which are 4 feet or less in depth and one acre in surface area must provide a safety bench or be enclosed within a 6 foot high perimeter fence. A vegetative barrier may be substituted for the fence. However, a performance bond must be provided for the cost and installation of the plant materials. A gate must also be provided which aligns with the 20 foot access easement.

15. All SWM/BMP facilities which are more than 4 feet in depth or more than one acre in surface area must provide both a safety bench and an aquatic bench, or be enclosed within a 6-foot high perimeter fence. A vegetative barrier may be substituted for the fence. However, a performance bond must be provided for the cost of installation of the plant materials. A gate must also be provided which aligns with the 20-foot access easement.

16. A minimum 12-foot wide ramp must be provided from the access gate to the bottom of the SWM/BMP facility. The slope cannot exceed 6:1.

17. A 50' vegetative perimeter yard is required around the basin measured from the 100-year water surface elevation or the downstream toe of dam, whichever applies. This area must be included within the limits of the SWM/BMP easement.

18. A profile view must be provided for the SWM/BMP facility which shows all the detail construction information which will be necessary for it's future certification.

19. The required storage volumes for water quality and water quantity must be shown on the profile view of the basin.

20. The top of the dam for the BMP must be at least 8 feet wide.

21. The 2, 10, and 100-year water surface elevations must be shown for all SWM/BMP facilities on the plan and profile views.

22. A shallow marsh establishment plan must accompany the BMP design. The required marsh volume is not included in the BMP volume. The types of wetland vegetation to be used must also be included. It is recommended that the wetlands bottom not be planted until the site is stabilized. At that time, the planting layout may be modified based on the "actual" water levels and bottom elevations. The water quality section must be involved in any layout modifications. (BMP Design 3 only)

23. Perforations in the riser must be precast, not field made. Please add a note to the riser detail.

24. The size of the perforations must be noted on the detail and the perforations must be evenly spaced up the riser structure opposite the barrel. Perforations shall begin at the floor elevation and shall be covered with wire mesh or filter fabric and gravel cone (4"-6" stone).

25. A minimum of 1 foot of freeboard is required between the top of the embankment and the staged 100-year water surface elevation.

26. The emergency spillway must be paved if it is used to convey any portion of the 10-year storm. If the emergency spillway is in "fill", then it must be paved to convey the 100-year storm.

27. All barrel and riser assemblies must be "o-ring" concrete pipe, no smaller than 15 inches in diameter.

28. A trash rack must be provided for the riser assembly.

29. A detail must be provided on the plan showing the method of securing the metal trash rack/anti-vortex device to the concrete riser pipe.

30. The embankment must have an impermeable clay core keyed into the natural ground. Please show a detail.

31. A sluice gate must be provided to facilitate draining the BMP for maintenance.

32. Outlet protection must be provided in accordance with std. & spec. 3.18 of the VESCH for all pipes discharging into the SWM/BMP facility. A detail must be shown for keying class I rip-rap into the ground at least 2 feet and placing it over filter cloth. Dimensions must be shown on the plan view.

33. The use of a low flow concrete channel in a BMP cannot be approved. Please use EC-1 type "A" at the outlet end of the inflow pipe. The invert out of the inflow pipe and the elevation of the first row of perforations in the riser should be at the same elevation.

34. The side slopes in SWM/BMP facilities shall be no steeper than three to one (3:1).

35. SWM/BMP facilities which are greater than 8 feet in depth must have a surface area of at least 1 acre. Water quality volumes for CBPA compliance applies only to those areas which are less than 8 feet in depth.

36. Provisions must be made in the erosion control narrative for conversion of the sediment basin into a SWM/BMP facility after the upstream areas are fully stabilized.

37. Several soil borings must be made within the limits of the infiltration trench to a depth of at least five feet below the bottom of the trench. A percolation test must be performed to determine if the infiltration rate of this soil is acceptable.

38. The Delaware sand filter must be constructed, tested, and maintained in accordance with minimum standard 3.12 of the Virginia Stormwater Management Handbook.

39. The construction narrative must be revised to ensure that the sand filter will not be placed in service until all site work has been completed and stabilization measures have been installed and functioning properly.

40. A minimum of two observation wells are required for the infiltration trench.

41. Provisions must be made in the erosion control narrative for the infiltration facility to be observed by a professional engineer during construction. "As built" information will be required for future certification of the facility.

42. Due to the high possibility for spills of oil, gas, anti-freeze, etc. an "off-line" sand filter must be installed. Design calculations must be submitted and details provided on the plans for its' construction. (Swift Creek Reservoir Watershed only)

Geographic Information System Checklist

1. Show the distance and bearings for all property lines, to include chord bearing and distance for all curves non-tangent to the direction of traverse.

2. Coordinate points based on the Virginia State Plane Coordinate System south zone, North American Datum 1983, must be shown on two corners of the property. Please contact the GIS section at 748-1035, if you have any questions.

3. The location of any Chesterfield County control monuments must be shown on the plans. If any are destroyed or must be relocated, they will be replaced or relocated at the Developer's expense.

4. If an exact reproduction of all or part of a copyrighted Chesterfield County map appears on the site plan, permission must be obtained from the Geographic Information Services section of the Environmental Engineering Department. The following statement must also be included on the plan adjacent to any portion of the GIS map product. "Copyright 1997 Chesterfield County, Virginia, Department of Environmental Engineering, PO Box 40, Chesterfield, VA 23832. The information on this publication may not be copied or reproduced in any form without permission... writing from the copyright owner. Every effort has been made to verify the information contained in this publication. The County assumes no liability for damage arising from errors or omissions. Users are urged to notify Chesterfield County of inconsistencies so that corrections can be made in future publications. Phone (804) 748-1035 or write to Chesterfield County Department of Environmental Engineering, PO Box 40, Chesterfield, Virginia 23832."

House Numbering Checklist

1. Show entry to property (driveway).

2. Show sign location near the driveway.

3. If a multi-tenant building, footprint floor plan is needed **as soon as possible.**
4. Show any other existing buildings.

5. Please contact David Valleau at 748-1039, if you have any questions.

CHESTERFIELD COUNTY
PLANNING DEPARTMENT
(804) 748-1050
http://www.chesterfield.gov

DEV. PLAN REVIEW
PUBLIC HEARINGS AUDIO/VISUAL AIDS

If you plan to present graphic or audio material to the Commission or Board at a public hearing, it is suggested that the material be provided in a form that is easily viewed by those watching on television as well as at the meeting. We offer the following suggestions:

- If you plan to bring a videotape or Power Point presentation, contact Greg Allen at 748-1072 or David Hainley at 748-1967 in the Planning Department a few days prior to the public hearing to make arrangements.

- Prior to the beginning of the public hearing, advise a staff member that you will be presenting audio/visual information.

- Do not bring materials mounted on large boards.

- Provide twenty (20) 8½ X 11 copies to the Administrative Secretary for distribution to individual members and to display on an opaque projector.

- Remember that typed information may be difficult to read, so make the font large and dark.

- 35mm slides should be mounted in a Kodak slide carousel. If you do not have a carousel, contact the Planning Department for assistance.

If you have any questions, please contact a staff member prior to the public hearing.

WP/OCT02/Oct14/nr